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ORIGINAL ARTICLE

Psychological problems of Iranian children and adolescents: parent report form of Strengths and Difficulties Questionnaire

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Abstract

Objective: The aim of this study was to evaluate the degree of psychological problems Iranian children and adolescents have, using parent report form of the Strengths and Difficulties Questionnaire (SDQ).

Methods: In a community-based study, 9636 children and adolescents aged 6–17 years were selected using the multistage cluster random sampling method from five provinces of Iran: Tehran, Isfahan, Fars, Razavi Khorasan and East Azerbaijan. The parents completed the SDQ, which consisted of five subscales including emotional problems, conduct problems, hyperactivity, peer problems and prosocial behaviors.

Result: The results revealed 21.4% of emotional problems, 32.9% of conduct problems, 20% of hyperactivity, 25.6% of peer problems, 7.6% of problems in prosocial behaviors and 16.7% of total difficulties among Iranian children and adolescents. We found that emotional problems were more prevalent among girls, while conduct problems, hyperactivity, total difficulties and problems in prosocial behaviors were more prevalent among boys. High educational level of parents was a protective factor against some psychological problems.

Conclusion: Considering the proportion of psychological problems in Iranian children and adolescents, we need to develop and implement special policies and programs to provide appropriate mental health services.

Keywords

Adolescents, children, emotional and behavioral problems, Iran, Strengths and Difficulties Questionnaire

History

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Introduction

Psychological problems of children and adolescents impose a huge social and economic burden on the community. Therefore, we need to gain a better understanding of the frequency and risk factors of psychological problems among children and adolescents to develop and implement mental health policies and plans (World Health Organization, 2005).

The parent report form of the Strengths and Difficulties Questionnaire (SDQ), which is available in over 40 languages, is a screening tool, which can identify about two-thirds of children and adolescents with psychological disorders in the community (Goodman et al., 2002).

Several studies have used the SDQ to report the frequency of psychological problems in children and adolescents. In a study conducted on Bangladeshi children aged 4–16 years, Mullick & Goodman (2001) reported that 13% of the community sample and 59.6% of the clinical cases had psychiatric disorders (Mullick & Goodman, 2001). Another research conducted on 6–11-year-old children in Brazil reported 18.7% total difficulties; also, poverty, maternal psychiatric disorder and family violence were the risk factors (Cury & Golfeto, 2003). Considering physical illness as a risk factor, Glazebrook et al. (2003) showed that around 20% of 5–15-year-old children attending pediatric out-patient clinics had emotional and behavioral problems as compared to 10% of the community sample (Glazebrook et al., 2003). Furthermore, two studies done in the United States from 2001 to 2007 found that around 5–7% of 4–17-year-old children had psychological problems, with male gender as a risk factor (Pastor et al., 2012; Simpson et al., 2005). Slobodskaya et al. (2007) reported 15–20% of psychiatric disorders in 3–17-year-old Siberian children and adolescents. In this study, harsh parenting was a risk factor and higher parental education and family cohesion were protective factors (Slobodskaya et al., 2007). In a longitudinal study,

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9430 Norwegian children aged 8–10 years were evaluated from 2002 to 2003. The results of this study revealed that 7% of the participants had psychiatric disorders; male gender, younger age, learning difficulties, nontraditional family type and poverty were risk factors (Heiervang et al., 2007).

To our knowledge, no study has investigated the frequency of psychological problems of Iranian children and adolescents in five provinces of Iran (nearly half of Iran's population). The Persian version of the SDQ was used to evaluate mental health problems in children aged 6–11 years in Tehran and found the rate of 25.8% (Mohammadi et al., 2008). Another study reported 17.8% of psychological problems in Iranian female adolescents using the SDQ; age, ethnicity, urban or rural residency and father's occupation were found to be predictive variables (Rabbani et al., 2012).

Considering that parent report form of the SDQ is an adequate screening tool to detect psychological problems, we used it to determine the proportion and predictive factors of emotional and behavioral problems in the community sample of Iranian children and adolescents.

Methods

Sample selection

A random multistage cluster household sample, which was a representative sample of Iranian children and adolescents aged 6–17 years, was obtained. Iran consists of 31 provinces and holds a population of approximately 75.2 million, of which, 13.8 million are found between 6 and 17 years of age. Urban dwellers constitute 71.4% of Iran's population. The sample of Iranian children and adolescents living in five distinct geographic provinces (Tehran, Isfahan, Fars, Razavi Khorasan and East Azerbaijan) were selected as a representation of the distribution of the national population. Approximately, 12.2 million (16.2%) of Iran's population live in Tehran province (capital of Iran), with 93% urban and 7% rural dwellers. Razavi Khorasan is the country's second largest province with a population of 6 million (8%), with 72% and 28% urban and rural dwellers, respectively. Isfahan is the third largest province in Iran with about a population of 4.9 million (6.5%), with 85% urban and 15% rural dwellers. Fars province holds a population of 4.5 million (6.1%), with 68% urban and 32% rural dwellers. East Azerbaijan, with a population of 3.7 million (5%), has 69% urban and 31% rural dwellers (Statistical Centre of Iran, 2011).

In Iran, provinces are subdivided into municipality areas. In this study, 250 clusters were selected randomly from all the municipality areas of the five provinces based on their population, which was proposed by the Statistical Centre of Iran. Using the 2011 national census, the available number of households on each cluster was determined. Using the detailed maps of the five provinces, the location of the households and their addresses were defined. In the clockwise rotation, eight households per cluster were surveyed; each cluster consisted of four pair households with 6–8, 9–11, 12–14 and15–17-year-old boys and girls. In the event that no 6–17-year-old boys or girls lived in a household, the interviewer skipped the ninth house and surveyed the tenth house. No replacement was done for those households that refused to be interviewed.

We obtained verbal informed consent from the parents to complete the SDQ. The Ethics Committee of Tehran University of Medical Sciences approved the research procedure.

Measures

SDQ

The SDQ is a structured questionnaire used to screen the child and adolescent psychiatric problems. The Parent report form of the SDQ contains 25 questions with five subscales including emotional symptoms, conduct problems, hyperactivity, peer problems and prosocial behaviors; the sum of the first four subscales generates the total difficulties (Goodman, 2003). Goodman et al. (2004) showed a specificity of 80% and a sensitivity of 85% for the SDQ (Goodman et al., 2004).

Ghanizadeh et al. (2007) reported the Cronbach's alpha coefficient of 0.73 for the Persian version of the SDQ and obtained a sensitivity of 90% and a specificity of 67% (Ghanizadeh et al., 2007). Another research showed an internal consistency of 0.73 and found the cut-off points of the Persian version of the SDQ to be almost similar to those obtained by other studies; only the cut-off point of total difficulties was different (Shahrivar et al., 2009).

We employed demographic variables including gender, age, province of residence, paternal and maternal education and occupation as predictors of psychopathology. Considering the Goodman's cut-off point, we categorized the participants to normal, borderline and abnormal groups. However, to run the logistic regression with a bivariate outcome, we classified borderline and normal groups as a normal group.

Statistical analysis

Data were entered into the SPSS 16.0 for Windows (SPSS 16.0, TEAM EQX, Chicago, IL, 2007). Since the random multistage cluster method was utilized to collect the data, STATA 10.0 for Windows was used to account the complex sample design by performing sampling weight (STATA 10.0, StataCorp LP, College Station, TX, 2007).

Descriptive analysis and logistic regression analysis were used to examine the association between psychological problems and demographic characteristics.

Results

Description of the sample

A total of 9636 parents were interviewed, and parent-report form of the SDQ was completed for 51.2% of boys and 48.7% of girls (Table 1). The mean age of children and adolescents was 11.9 ± 3.3 years in this study. Only 3.4% of the participants refused to be interviewed, so the response rate was 96.6%.

Frequency of psychological problems

Table 2 demonstrated that the most frequent psychological problem was conduct problems (32.9%) and the less frequent was problems with prosocial behaviors (7.6%).

Emotional problems (26.6%) were more prevalent in girls aged 9–11 years; conduct problems (38.3%), hyperactivity (25.7%), peer problems (29.5%) and total difficulties (21.1%) were more frequent in boys aged 6–8 years; and problems with prosocial behaviors (12.8%) were more prevalent in boys aged 15–17 years (Table 2).

For a multiple analysis, all the seven variables are listed in Table 1 were entered into a logistic regression model (Table 3), and the findings were compared to the baseline category of each variable. Odds ratio of emotional problems in girls was 1.33-fold in comparison with boys; odds ratio of conduct problems, hyperactivity, total difficulties and problems with prosocial behaviors in girls were 0.79-, 0.66-, 0.82- and 0.71-fold as compared to boys, respectively. Odds ratio of conduct problems (0.96), hyperactivity (0.94), peer problems (0.97) and total difficulties (0.96) were significantly decreased with aging; however, the odds ratio of problems with prosocial behaviors (1.04) was significantly increased with aging. The odds ratio of hyperactivity and peer problems in Isfahan residents were 1.34- and 1.27-folds in comparison with Tehran residents; and odds ratio of conduct problems, hyperactivity and total difficulties in Fars residents were 1.52-, 1.65- and 2.0-folds as compared to Tehran residents. Odds ratio of conduct problems and hyperactivity in East Azerbaijan and Razavi Khorasan residents were 0.72- and 0.77-folds as compared to Tehran residents, respectively. Odds ratio of emotional problems, conduct problems and total difficulties in fathers with high education were 0.61-, 0.63- and 0.47-folds as compared to illiterate fathers; and odds ratio of emotional problems, conduct problems, peer problems and total difficulties in mothers with high education were 0.50-, 0.57-, 0.58- and 0.54-folds comparing to illiterate mothers. The odds ratio of total difficulties in unemployed fathers was 1.53-fold in comparison with employee fathers (Table 3).

Table 1. Descriptive demographic profile for Iranian children and adolescents.

Characteristics	Numbers	Weighted proportion, %
Gender		
Boy	4836	51.2
Girl	4800	48.7
Age, years		
6–8	1951	19.8
9–11	2514	24.3
12–14	2474	22.9
15–17	2697	32.8
Province		
Tehran	1864	47.7
Isfahan	1978	12.2
Fars	1941	9.6
Razavi Khorasan	1856	20.6
East Azerbaijan	1997	9.7
Paternal Education		
Illiterate	557	5.0
Primary school	1905	18
Secondary school	1854	20.4
High school	407	2.9
Diploma	2843	34.2
Bachelor to top	1574	19.2
Paternal occupation		
Employee	2864	34.8
Self-employed	5063	53.9
Unemployed	348	3.0
Retired	696	6.3
Other	155	1.3
Maternal Education		
Illiterate	729	6.4
Primary school	2083	20
Secondary school	1761	18.8
High school	471	3.1
Diploma	3108	39.4
Bachelor to top	1084	12
Maternal occupation		
Employee	824	10
Self-employed	187	2.2
Housekeeper	8081	85.8
Retired	144	1.1
Other	50	0.4

Discussion

This is the first study conducted on the psychological problems of children and adolescents in five provinces of Iran (nearly half of Iran's population). The results revealed that 16.7% of children and adolescents in Iran have emotional and behavioral problems. Overall, psychological problems were associated with gender, age, province of residence and educational and occupational levels of parents. Unlike other studies performed in Iran, we selected samples from diverse geographic regions and used broad age ranges in both genders. Because the self-report form of the SDQ completed by adolescents is not an appropriate basis to detect young people and its scores are usually in normal and borderline ranges, we used the parent report form of the SDQ, which provides information equivalent to the teacher form, being more reliable than self-report forms for all disorders (Goodman et al., 1998; Ronning et al., 2004).

Our results replicate previous findings. The studies conducted in Bangladesh, United Kingdom, Brazil, United States, Siberia and Norway reported psychological problem rates of 13%, 10%, 18.7%, 5–7%, 15–20% and 7%, respectively (Cury & Golfeto, 2003; Glazebrook et al., 2003;

Table 2. Proportion (%) of SDQ subscales based on gender and age groups.

Age, years			Boys, %				Girls, %			
SDQ subscales	Cutoff point	Total, %	6–8	9–11	12–14	15–17	6–8	9–11	12–14	15–17
Emotional problems	5	21.4	19.8	18.4	19.9	17.6	20.5	26.6	22.4	25.9
Conduct problems	4	32.9	38.3	34.6	33.5	32.4	33	34.4	26.5	25.9
Hyperactivity	7	20.0	25.7	24.5	19.5	18.7	21.6	20.2	12.9	10.2
Peer problems	4	25.6	29.5	24.2	27.9	23.8	25.5	25.3	24.8	23.7
Total difficulties	19	16.7	21.1	17	16.8	13.6	16.3	18.8	12.1	14.2
Problems with Prosocial behaviors	4	7.6	6.4	7.9	9.3	12.8	6.3	6.3	5.7	7.1

Table 3. Logistic regression analysis for demographic characteristics on SDQ subscales.

SDQ subscales Characteristics	Emotional problems OR 95% CI	Conduct problems OR 95% CI	Hyperactivity OR 95% CI	Peer problems OR 95% CI	Total difficulties OR 95% CI	Problems with Prosocial behaviors OR 95% CI
Gender						
Boy	1.00 Baseline	1.00 Baseline	1.00 Baseline	1.00 Baseline	1.00 Baseline	1.00 Baseline
Girl	1.33 (1.15–1.55)[a]	0.79 (0.69–0.90)[a]	0.66 (0.57–0.78)[a]	0.89 (0.78–1.01)	0.82 (0.69–0.98)[b]	0.71 (0.55–0.92)[c]
Age, years	1.01 (0.99–1.04)	0.96 (0.95–0.98)[c]	0.94 (0.92–0.96)[a]	0.97 (0.95–0.99)[c]	0.96 (0.94–0.99)[c]	1.04 (1.00–1.08)[b]
Province						
Tehran	1.00 Baseline	1.00 Baseline	1.00 Baseline	1.00 Baseline	1.00 Baseline	1.00 Baseline
Isfahan	1.25 (0.97–1.61)	0.95 (0.78–1.16)	1.34 (1.05–1.70)[c]	1.27 (1.01–1.58)[b]	1.17 (0.91–1.50)	0.76 (0.50–1.16)
Fars	1.22 (0.93–1.60)	1.52 (1.22–1.91)[a]	1.65 (1.26–2.15)[a]	1.25 (0.98–1.60)	2.0 (1.56–2.57)[a]	0.72 (0.45–1.17)
Razavi Khorasan	0.76 (0.57–1.01)	0.91 (0.72–1.15)	0.77 (0.59–0.99)[b]	1.03 (0.81–1.32)	0.79 (0.61–1.03)	1.14 (0.77–1.70)
East Azerbaijan	1.06 (0.78–1.44)	0.72 (0.56–0.92)[c]	0.85 (0.63–1.15)	1.06 (0.82–1.37)	0.80 (0.60–1.07)	1.10 (0.71–1.69)
Paternal Education						
Illiterate	1.00 Baseline	1.00 Baseline	1.00 Baseline	1.00 Baseline	1.00 Baseline	1.00 Baseline
Primary School	0.82 (0.59–1.14)	0.81 (0.59–1.11)	0.82 (0.55–1.21)	0.87 (0.63–1.19)	0.73 (0.51–1.04)	0.63 (0.39–1.01)
Secondary School	0.82 (0.57–1.18)	0.89 (0.63–1.25)	0.98 (0.63–1.52)	0.94 (0.67–1.31)	0.74 (0.51–1.09)	0.68 (0.42–1.10)
High School	0.87 (0.56–1.36)	0.68 (0.42–1.08)	0.67 (0.37–1.19)	0.71 (0.43–1.18)	0.59 (0.32–1.08)	0.57 (0.30–1.09)
Diploma	0.83 (0.57–1.21)	0.67 (0.47–0.96)[b]	0.83 (0.54–1.28)	0.79 (0.54–1.15)	0.64 (0.43–0.95)[b]	0.52 (0.29–0.93)[b]
Bachelor to top	0.61 (0.40–0.93)[b]	0.63 (0.42–0.95)[b]	0.71 (0.44–1.14)	0.72 (0.47–1.11)	0.47 (0.29–0.77)[c]	0.73 (0.36–1.46)
Paternal occupation						
Employee	1.00 Baseline	1.00 Baseline	1.00 Baseline	1.00 Baseline	1.00 Baseline	1.00 Baseline
Self-employed	1.04 (0.84–1.29)	1.15 (0.96–1.36)	1.19 (0.99–1.42)	0.80 (0.67–0.95)[b]	1.14 (0.93–1.41)	0.97 (0.70–1.36)
Unemployed	0.94 (0.66–1.34)	1.19 (0.83–1.70)	1.43 (0.98–2.09)	0.83 (0.59–1.17)	1.53 (1.04–2.25)[b]	0.72 (0.36–1.46)
Retired	0.80 (0.57–1.13)	0.89 (0.66–1.21)	1.13 (0.81–1.59)	0.60 (0.44–0.81)[a]	1.18 (0.82–1.70)	0.90 (0.58–1.40)
Other	1.61 (0.97–2.66)	1.16 (0.71–1.89)	1.73 (1.0–2.99)[b]	0.98 (0.61–1.57)	2.22 (1.33–3.71)[c]	0.81 (0.33–1.94)
Maternal Education						
Illiterate	1.00 Baseline	1.00 Baseline	1.00 Baseline	1.00 Baseline	1.00 Baseline	1.00 Baseline
Primary School	0.89 (0.68–1.17)	0.92 (0.69–1.23)	1.31 (0.88–1.95)	0.94 (0.69–1.28)	1.20 (0.89-1.61)	1.03 (0.68–1.55)
Secondary School	1.06 (0.78–1.44)	1.04 (0.77–1.42)	1.73 (1.13–2.63)[c]	0.90 (0.63–1.28)	1.52 (1.09–2.12)[c]	0.92 (0.58–1.46)
High School	0.68 (0.44–1.04)	0.95 (0.63–1.45)	1.82 (1.06–3.14)[b]	0.92 (0.57–1.49)	1.00 (0.63–1.60)	1.06 (0.59–1.90)
Diploma	0.77 (0.55–1.08)	0.88 (0.63–1.22)	1.62 (1.03–2.53)[b]	0.73 (0.50–1.05)	1.07 (0.73–1.56)	0.90 (0.53–1.52)
Bachelor to top	0.50 (0.32–0.77)[c]	0.57 (0.38–0.85)[c]	1.03 (0.61–1.74)	0.58 (0.37–0.90)[b]	0.54 (0.33–0.87)[c]	0.71 (0.34–1.46)
Maternal occupation						
Employee	1.00 Baseline	1.00 Baseline	1.00 Baseline	1.00 Baseline	1.00 Baseline	1.00 Baseline
Self-employed	0.81 (0.40–1.64)	0.77 (0.44–1.33)	1.44 (0.71–2.93)	1.14 (0.64–2.02)	0.86 (0.44–1.69)	1.66 (0.62–4.43)
Housekeeper	0.91 (0.65–1.28)	0.86 (0.63–1.16)	0.93 (0.66–1.32)	0.91 (0.67–1.22)	0.77 (0.53–1.11)	1.23 (0.66–2.29)
Retired	0.65 (0.32–1.34)	0.93 (0.48–1.81)	1.11 (0.51–2.40)	1.16 (0.64–2.09)	0.60 (0.27–1.34)	0.53 (0.18–1.58)
Other	0.60 (0.24–1.51)	1.32 (0.56–3.13)	0.77 (0.38–1.56)	0.78 (0.35–1.69)	0.70 (0.27–1.76)	0.87 (0.23–3.26)

OR = odds ratio; CI = confidence interval.
[a]$p < 0.001$; [b]$p < 0.05$; and [c]$p < 0.01$.

Heiervang et al., 2007; Mullick & Goodman, 2001; Pastor et al., 2012; Simpson et al., 2005; Slobodskaya et al., 2007); some of these rates are near the total abnormality rate of 16.7% that we obtained. However, one Iranian study reported more total abnormality rate of 25.8% (Mohammadi et al., 2008). This inconsistency may be due to the fact that they did not consider the cut-off point of the Persian version of the SDQ.

According to this research, conduct problems (32.9%) were the highest rate disorders compared to other psychological problems. This finding is consistent with two Iranian studies (Mohammadi et al., 2008; Rabbani et al., 2012), but it is inconsistent with studies performed in Bangladesh, Gaza, Brazil, Siberia and Norway, which reported emotional problems as the most frequent disorder, and with a British study which found hyperactivity as the most prevalent problem (Cury & Golfeto, 2003; Heiervang et al., 2007; Mullick & Goodman, 2001; Slobodskaya et al., 2007; Thabet et al., 2000). This discrepancy needs to be investigated; however, it seems that conduct problems have increased in Iran (Mohammadi et al., 2008; Rabbani et al., 2012).

We found more prevalent emotional problems in girls because they internalize their problems, and we found more conduct problems, hyperactivity and problems in prosocial behaviors in boys because they tend to externalize their behaviors (Leadbeater et al., 1999). These results are in line with an Iranian research (Mohammadi et al., 2008) and Brazilian and British studies that reported more prevalent hyperactivity in boys (Cury & Golfeto, 2003; Glazebrook et al., 2003).

Because ADHD is more common at younger ages, we found that 6–11-year-old children had higher rates of hyperactivity compared to 12–17-year-old adolescents. This is consistent with Brazilian, Norwegian and Iranian studies (Cury & Golfeto, 2003; Heiervang et al., 2007; Mohammadi et al., 2008). Gavin & Furman (1989) reported less peer problems in late adolescents as compared to early and middle adolescents (Gavin & Furman, 1989). We also found that conduct and peer problems have significantly declined with age increase. Inversely, more common problems were found in prosocial behaviors in older adolescents. We observed more psychological problems in younger children; this

finding confirms an American study that reported more difficulties in 8–14-year-old children (Simpson et al., 2005).

The findings revealed that residence in Fars province was a risk factor for conduct problems, hyperactivity and total difficulties; also, Isfahan residency was a risk factor for hyperactivity and peer problems. However, East Azerbaijan and Razavi Khorasan residency were protective factors for conduct problems and hyperactivity, respectively. The differences between the provinces need to be studied.

According to this research, high education of parents was a protective factor, and it confirms the finding of the Siberian study, which showed the contribution of higher parental education in lower levels of problems (Slobodskaya et al., 2007). However, low educational levels of the fathers were not associated with psychological problems; this finding is consistent with studies conducted in the United States and Norway (Heiervang et al., 2007; Simpson et al., 2005).

We found that unemployment of the fathers was a risk factor for total difficulties, which confirms study by Rabbani et al. (2012). However, maternal occupation had no association with psychological problems, which needs to be studied.

There were several limitations: first, the children who participated in this study were not from all ages, and they were aged 6–17 years; second, the sample was selected from the five mentioned provinces of Iran, so the findings cannot be generalized to the whole country.

We suggest further research with more socio-demographic and cultural variables using longitudinal studies. We also recommend that the results be compared by clinical interviews.

Declaration of interest

This study was conducted by Tehran University of Medical Sciences, Deputy of Research, Psychiatry and Psychology Research Center; Ministry of Health and Medical Education, Deputy of Research; Mental Health Research Network; Isfahan University of Medical Sciences, Behavioral Science Research Center; Shiraz University of Medical Sciences, Research Center for Psychiatry and Behavioral Sciences; Razavi Khorasan University of Medical Sciences, Psychiatry and Behavioral Sciences Research Center; and East Azerbaijan University of Medical Sciences, Clinical Psychiatry Research Center.

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